



S. S. PAPADOPULOS & ASSOCIATES, INC.
ENVIRONMENTAL & WATER RESOURCE CONSULTANTS

INVOICE

Client:

Environmental Protection Agency

Research Triangle Park
 Financial Management Center
 (D143-02)
 Research Triangle Park, NC 27711
 Mr. Daniel Olsson

Invoice #: 21361
Date: 8/15/2019
Project Name: EPA Region V Support
Project #: 1453

Comments:

GSA Contract #GS-10F-0462M
 EP-G145-00278

Remit Payment To: S. S. Papadopoulos & Associates, Inc.
 7944 Wisconsin Avenue
 Bethesda, MD 20814-3620

Phone: (301) 718-8900

For Services Rendered Through 7/31/2019

026-00-10 - 0003AC - St. Regis (05J2)

Outside Consultants

<u>Activity/Vendor</u>	<u>Invoice</u>	<u>Date</u>	<u>Cost</u>	<u>Mult</u>	<u>Amount</u>
Subterranean Research, Inc.	SSP21401-I63		196.35	1.00	\$196.35
Outside Consultants Subtotal					\$196.35
Item Subtotal					\$196.35

027-00-10 - 0003AD - Lemberger (053E and 05J4)

Outside Consultants

<u>Activity/Vendor</u>	<u>Invoice</u>	<u>Date</u>	<u>Cost</u>	<u>Mult</u>	<u>Amount</u>
Subterranean Research, Inc.	SSP21401-I63		283.62	1.00	\$283.62
Outside Consultants Subtotal					\$283.62
Item Subtotal					\$283.62

029-00-10 - 0003AF - Forest Waste Products (05D5)

Professional Services

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Associate			
Soderberg, Keir S			\$85.81
Labor Subtotal			\$85.81

Ex. 4 CBI

Project 1453 EPA Region V Support

Invoice 21361

Item Subtotal

\$85.81**039-00-10 - 0003AP - Pristine (0556)****Professional Services**Employee Type

Sr. Project Hydrogeologist/Sci

Perozo, Erica L. DiFilippo

Sorel, Dominique

Prj. Hydrogeologist/Sci.

Cousins, S. James

Technician/Draftsperson

Pekoske, Kristen M

Hours

Rate

Amount

Ex. 4 CBI

\$1,519.10

\$138.10

\$1,192.25

\$90.91

Labor Subtotal

\$2,940.36

Item Subtotal

\$2,940.36**040-00-10 (0521) - 0003AQ - Chemical Recovery Systems****Professional Services**Employee Type

Principal

Tonkin, Matthew J

Sr. Project Hydrogeologist/Sci

Sorel, Dominique

Prj. Hydrogeologist/Sci.

Cousins, S. James

Parratt, Toomas

Sayler, Frances Claire

Technician/Draftsperson

Adams, Glen

Pekoske, Kristen M

Support Personnel

Penzes, Sophie

Rutledge, Devon R

Hours

Rate

Amount

Ex. 4 CBI

\$2,181.70

\$3,935.85

\$251.00

\$4,518.00

\$502.00

\$200.01

\$327.28

\$63.95

\$319.75

Labor Subtotal

\$12,299.55**Reimbursables**Activity/Vendor

Glance Session Charge

ZEXP - Internal Project Charges

Invoice

Date

Cost

Mult

Amount

07312019-1

7/31/2019

50.00

1.00

\$50.00

Reimbursable Subtotal

\$50.00

Item Subtotal

\$12,349.55

Project 1453 EPA Region V Support

Invoice 21361

041-00-10 (05F4) - 0003AR - Union Carbide**Professional Services**Employee Type

Associate

Spiliotopoulos, Alexandros

Sr. Project Hydrogeologist/Sci

Karanovic, Marinko

Sorel, Dominique

Prj. Hydrogeologist/Sci.

Cousins, S. James

Karanovic, Zdravka

Wang, Xiaomin

Sr. Staff Hydrogeologist/Sci.

Allen, Saul I

O'Connell, Matthew T

Technician/Draftsperson

Pekoske, Kristen M

Hours

Rate

Amount

Ex. 4 CBI

\$3,174.97

\$69.05

\$5,869.25

\$251.00

\$627.50

\$376.50

\$197.70

\$1,468.61

\$18.18

Labor Subtotal**\$12,052.76****Reimbursables**Activity/Vendor

Glance Session Charge

ZEXP - Internal Project Charges

InvoiceDateCostMultAmount

07312019-1

7/31/2019

60.00

1.00

\$60.00

Reimbursable Subtotal**\$60.00****Item Subtotal****\$12,112.76****Invoice Amount****\$27,968.45**

 Matthew J. Tonkin

Project Manager

S.S. Papadopoulos & Associates, Inc.

301-718-8900

mtonkin@sspa.com



S.S. PAPADOPULOS & ASSOCIATES, INC.
ENVIRONMENTAL & WATER-RESOURCE CONSULTANTS

EPA Region 5 Support
Description of Services Performed

Period of Performance:
 Through July 2019

1453-029-00-10-029-01-10 0003AF: Forest Waste

Services were performed by the following SSP&A staff:

Staff	Hours
Keir Soderberg	0.50

During this period, K. Soderberg reviewed preliminary data, checked it against reports and sent an email.

1453-039-00-10-039-01-10 0003AP - Pristine

Services were performed by the following SSP&A staff:

Staff	Hours
Erica Perozo	11.00
Dominique Sorel	1.00
S. James Cousins	9.50
K. Pekoske	1.25

During this period, E. Perozo worked on water-level map updates, 3-pt gradient updates, and gradient map figures. D. Sorel worked on the monthly report. S.J. Cousins worked on spatial analysis/figures. K. Pekoske worked on the monthly report.

1453-040-00-10 (0521)-040-01-10 0003AQ - Chemical Recovery Systems

Staff	Hours
Matthew Tonkin	10.00
Dominique Sorel	28.50
S. James Cousins	2.00
Toomas Parratt	36.00
Frances Sayler	4.00
Glen Adams	2.75
Kristen Pekoske	4.50
Sophie Penzes	1.00
Devon Rutledge	5.00



Page 2

During this period, D. Sorel prepared for and participated in a conference call with EPA commenting on GW-SW workplan, assembled a presentation and reviewed geology. She also worked on GW-SW comments, reviewed papers and communicated with T. Parratt and M. Tonkin. Finally, D. Sorel followed up on GW-SW comments, had a call with Judy Canova RPM, and communicated with M. Tonkin and worked on the monthly report. S.J. Cousins worked on 3D software setup. T. Parratt reviewed GW-SW field plan, developed a presentation for client and created a simple MODFLOW model. He also reviewed a memo and wrote the modeling section. F. Sayler reviewed the 2017 report. M. Tonkin held internal calls and net meetings on review of CSM. He worked on discharge data and analyses and held meetings with T. Parratt, F. Sayler and D. Sorel on document review - CSM and GW/SW interaction. M. Tonkin conducted a review of CSM, GW-SW interaction plan and planned study, corresponded with EPA and joined a Net meeting with EPA. Finally, he reviewed TM, sent comments over and edited document that he sent to D. Sorel for finalization. G. Adams assisted D. Rutledge in georeferencing a difficult map. He also spent time clipping a raster and compiling files and creating a shapefile of the site outline for T. Parratt. K. Pekoske entered documents into Endnote, worked on the monthly report notes, and obtained references for D. Sorel. She also called several companies for information on distributed temperature sensors and formatted a memo for D. Sorel. S. Penzes made travel arrangements. D. Rutledge did GIS work for D. Sorel and S.J. Cousins.

1453-041-00-10 (05F4)-041-01-10 0003AR - Union Carbide

Staff	Hours
Alex Spiliotopoulos	18.50
Marinko Karanovic	0.50
Dominique Sorel	42.50
S. James Cousins	2.00
Zdravka Karanovic	5.00
Matt O'Connell	13.00
Xiaomin Wang	3.00
Saul Allen	1.75
Kristen Pekoske	0.25

During this period, A. Spiliotopoulos reviewed monitoring reports, geology and water level data, monitoring data and had several calls with D. Sorel. He worked on WL/WQ evaluations, review of plume migration, calculations on WL/WQ historical data, trend review and review of AS/B system performance. A. Spiliotopoulos reviewed documents provided by EPA, monitoring plan, performance assessment reports, and historical data. He also did trend calculations with M. O'Connell. Finally, he reviewed monitoring plan and trend calculations and concentration trends at monitoring wells. M. Karanovic helped D. Sorel with KT3D in GroundWater Desktop. D. Sorel spent time assembling water-level data to plot hydrographs and perform water-level mapping. She communicated with EPA regarding data needs, had a call with RPM regarding data needs. She worked on setting up GIS, and GWD to do WL mapping. She had a call with A. Spiliotopoulos regarding data analysis roadmap, preparing hydrographs and extracting geological cross-sections. D. Sorel worked on water-level mapping, well data QA/QC, initiating review of documents (quarterly



Page 3

reports, monitoring plan), additional communications with RPM regarding data needs, assembling documents, communications with M. O'Connell regarding trend analysis, preparation for database and communications with EPA database specialist John Canar. Finally, she communicated with A. Spiliotopoulos regarding a status update and worked on the monthly report. S.J. Cousins worked on 3D software setup. Z. Karanovic worked on the database. X. Wang looked at the chemistry data in EXCEL files and summarized what to import for database. She created 2017 chemistry sampling data in the database. S. Allen checked (QA) table for D. Sorel. He also converted 2016 data for D. Sorel. K. Pekoske worked on the monthly report.

Subterranean Research, Inc.

Services were performed by Subterranean on the following tasks, through July:

Site	Hours
St. Regis	0.9
Lemberger	1.3
Hagen Farm	0
Hedblum	0
Auto Ion	0
Bendix/Bosch	0

Work completed by Subterranean during this period is described on their attached invoice.

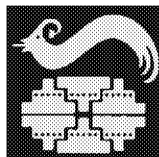
S.S. PAPADOPULOS & ASSOCIATES, INC.

Summary completed by:

Dominique Sorel
Alternate Project Manager

Summary reviewed by:

Matthew Tonkin
Project Manager



DAVID E. DOUGHERTY
SUBTERRANEAN RESEARCH, INC.
121 BEACH STREET, UNIT 301
BOSTON, MA 02111-2501
(781)-710-1448
DDOUGHER@SUBTERRA.COM

8 August 2019

Jeanne Bailey
S. S. Papadopoulos & Associates, Inc.
7944 Wisconsin Avenue
Bethesda, MD 20814

RE: Invoice ID: SSP21401-I63
Invoice Period: Through 31 July 2019
SSP&A Project No.: 1453

Dear Ms. Bailey:

Enclosed is an executed invoice for the billing period through 31 July 2019. A monthly progress report was sent to Dominique separately.

Please contact me with any questions (ddougher@subterra.com or 781-710-1448).

Sincerely yours,

SUBTERRANEAN RESEARCH, INC.

David E. Dougherty

Enclosures: Executed invoice

cc: D. Sorel, M. Tonkin

Subterranean Research, Inc.
121 Beach St., Unit 301
Boston, MA 02111-2501

Date: 8 August 2019

INVOICE TO:
S. S. Papadopoulos & Associates, Inc.
7944 Wisconsin Avenue
Bethesda, MD 20814

RE: Our Invoice ID: SSP21401-I63
Invoice Period: Through 31 July 2019
SSP&A Project No.: 1453

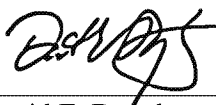
ID #	Description	Current SRI Hours	Labor Rate	Current SRI Labor SS	Current Other SRI Expense	Current Other SRI Expense SS	Current SRI Total SS	SRI Total SS Since 5/1/2017
0003 AC	St. Regis							\$51,396.63
0003 AD	Lemberger							\$30,519.52
0003 AH	Hagen Farm							\$7,445.91
0003 AI	Hedblum							\$2,910.29
0003 AK	Auto Ion							\$301.59
0003 AN	Kysor							\$2,519.89
0003 AO	Bendix/Bosch							\$49,219.88
0003 AE	Reilly Tar MN							\$0.00
Total Billing:								\$144,313.71

Ex. 4 CBI

* NOTE: Differences of pennies may occur due to rounding and accumulation.

Site	# Hrs	Activities
St. Regis	0.9	Additional review of extraction well replacement field investigation memo; Conference call; Telephone; Email.
Lemberger	1.3	Conference call; Telephone; Email.
Hagen Farm	0.0	No activity.
Hedblum	0.0	No activity.
Auto Ion	0.0	No activity.
Kysor	0.0	No activity.
Bendix/Bosch	0.0	No activity.
Reilly Tar MN	0.0	No activity.

Prepared by:


David E. Dougherty

Date: 11 Aug 2019

Glance Charges for the period 07/01/19 to 07/31/19						
Project #	Date/Time	Duration	Units	Rate	Total	Grand Total

1453-40	7/12/2019 8:45	Ex. 4 CBI			40.00	
1453-41	7/17/2019 12:01				20.00	
1453-40	7/23/2019 12:53				0.00	
1453-40	7/23/2019 13:04				0.00	
1453-40	7/25/2019 13:58				10.00	
1453-41	7/25/2019 14:44				10.00	
1453-41	7/10/2019 16:03				20.00	
1453-41	7/29/2019 13:10				10.00	
						110.00